Clean label yogurt
Clean Label Conference
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Hanne K. Ludvigsen
Product & Application Manager
Ice Cream & Dairy Group
Palsgaard
Palsgaard – the ingredients specialist

Palsgaard is a leading global expert within emulsifiers and stabilizers

– and we are happy to share our unique ingredient mix of century-old expertise, innovation and commitment with the world wide food industry
Application centers and pilot facilities

At Palsgaard we are happy to share our expertise with our customers:

• In our application centers we work closely with customers to:
  • Create new and innovative consumer products
  • Optimize existing recipes and products
  • Improve production processes

• Our high tech application centers are located in:
  • Denmark
  • Mexico
  • Singapore
  • China
  • Dubai (opening 2015)

www.palsgaard.com
Application facilities Dairy
Clean label yogurt

• What happens during the processing of yogurt?
  • pH decrease
  • Milk proteins coagulate
  • Reduced water-binding capacity
  • Syneresis

• Cultures
  • Reduction of lactose
  • Formation of flavor compounds
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Quality parameters

- Creaminess
- Smoothness
- Viscosity
- Texture
- Syneresis/whey separation
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• Recipe
  • Yogurt based on whole milk
    • 3.4% protein
    • 3.5% fat
    • 0-3% skim milk powder or
    • 0-1% Palsgaard AcidMilk 316
  • Pasteurization 200°F, 5 min

• Homogenization 2845 psi. at 150-160°F.
• Fermentation at 110°F until pH 4.4 – 4.6
• Stir, fill and cool.
Viscosity of yogurt – Effect of holding time at 90°C

Milk 3.8% pasteurized at 90°C/195°F (Source: IDF – FIL)
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Viscosity of yogurt – Effect of homogenization

Milk 3.8% pasteurized for 20 min. at 85°C - 185°F (Source: IDF – FIL)
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Brookfield viscosity at 20 RPM

Viscosity in cP

Day 2  Day 7  Day 14  Day 21

Reference
1 % SMP
2 % SMP
3 % SMP
0.5 % AcidMilk 316
0.8 % AcidMilk 316
1 % AcidMilk 316
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Whey Separation in %

- Reference
- 1 % SMP
- 2 % SMP
- 3 % SMP
- 0.5 % AcidMilk 316
- 0.8 % AcidMilk 316
- 1 % AcidMilk 316

Day 2  Day 7  Day 14  Day 21
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Amplitude stress sweep at 1Hz

- $G'$ Reference - Day 21
- $G''$ Reference - Day 21
- $G'$ 3% SMP - Day 21
- $G''$ 3% SMP - Day 21
- $G'$ 0.8% AM 316 - Day 21
- $G''$ 0.8% AM 316 - Day 21
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• Conclusion
  • 0.8 % Palsgaard AcidMilk 316 more efficient than adding extra skim milk solid in:
    • Shear stability
    • Structure building
    • Water retention
  • Resulting in a yogurt with spoonable texture, and good body and mouthfeel

• Palsgaard AcidMilk 316
  • Starch
  • Vegetable fibre